

Adobe Flash 8
Part 4: Interactivity
INFORMATION TECHNOLOGY SERVICES
California State University, Los Angeles

Version 1.1

Spring 2009

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Introduction

Adobe Flash 8 is the industry's most advanced authoring environment for creating interactive and animated Web sites. It gives Web designers an efficient way to send artwork and animation over the internet. Flash uses vector graphics, which can be scaled to any size without losing clarity/quality. Flash also uses easy scripting for adding interactivity and animation.

One of the most compelling parts of Adobe Flash is the ability to add interaction. By adding interacting elements, users are engaged to take control of the animation. The most common and basic interactive tools are buttons. In Flash, it is easy to implement buttons with any color or shape. In addition, sounds and animations can be added as elements of the button. Buttons can also be used as menus by linking them up with certain frames.

Using Buttons

Buttons are one of the most powerful ways of adding interaction. When working with buttons it's important to understand the different states of a button. For example most dialog boxes contain an **OK** button. When the **OK** button is clicked it will look slightly different than when it's not clicked. In Flash, this is called the Up and Down state. Up when the button is not being clicked, and Down when it is being clicked. These are two of the four states that is available for buttons and they will all be covered in one of the following sections.

CREATING A BUTTON

In this section a new kind of symbol will be introduced, the button symbol. Creating a button is done by inserting a button symbol into the library.

To create a button symbol:

1. Select the **F**ile menu ► **N**ew....
2. Click on the **OK** button. This will create a new flash file.
3. Go to **I**nsert ► **N**ew Symbol... in the menu. The *Create New Symbol* dialog box appears (see Figure 1).

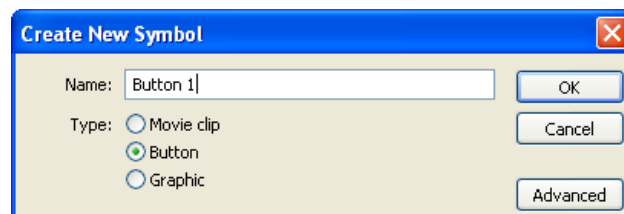


Figure 1 - Creating a Button Symbol

4. Type desired name of the new button in the *Name:* text box. For example [**Button 1**].
5. Select the **Button** option.
6. Click **OK** button. The symbol master will appear.

NOTE: Notice how the **Timeline** panel will look different from **Graphic** and **Movie Clip** symbols (see Figure 2). This is because instead of defining frames for the buttons, we must define states. Each button has four states: Up, Over, Down, and Hit (see Table 1).

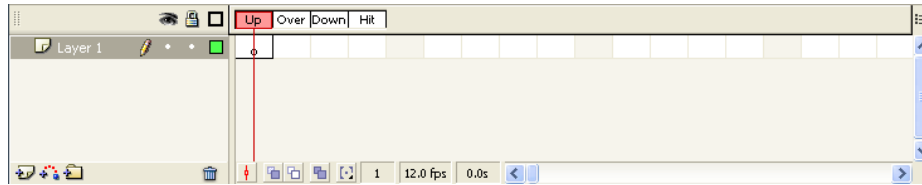


Figure 2 - The Button Symbol Timeline

Table 1 - The four button states

State	Description
Up	Default state.
Over	State when mouse is hovered over button.
Down	State when left mouse button is clicked on button.
Hit	Special state defining what area of the button that is intended to be clickable. The hit state doesn't need to be defined unless a hit-area outside the shape is desired.

To define the up state:


1. From the **Tools** panel, select the **Rectangle Tool** .
2. Draw a rectangle somewhere in the Up frame (see Figure 3).




Figure 3 - The Up State of the Button

To define the over state:

1. Right-click on the Over frame in the **Timeline** panel. Select **Insert Keyframe**. The rectangle will be highlighted (see Figure 4).



Figure 4 - Highlighted Button

2. From the **Tools** panel, select the **Paint Bucket Tool** .
3. In the **Properties** panel, change the color of the **Paint Bucket Tool** to a light green color (see Figure 5). This will change the color of the rectangle (see Figure 6).

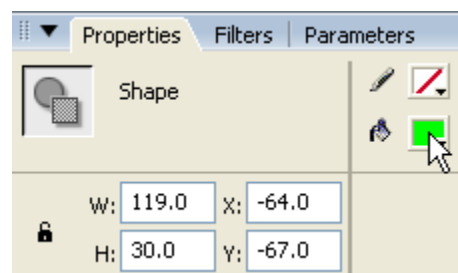



Figure 5 - Changing the color of the rectangle



Figure 6 - Light Green Rectangle




To define the down state:

1. Insert a new Keyframe in the Down frame of the **Timeline**.
2. From the **Tools** panel, select the **Paint Bucket Tool** .
3. In the **Properties** panel, change the color of the **Paint Bucket Tool** to red. This will change the color of the rectangle to red.

To add the button to the scene:

1. Click on **Scene 1** on the **Timeline**. This will bring Flash back to **Scene 1**.
2. From the **Library** panel, left-click and drag the **Button 1** symbol over to the middle of the first frame.
3. Animation is done. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. The result should be in accordance with Table 2.

Table 2 – A simple button

State	Button	Description
Up		The button will be blue as long as the mouse cursor is not hovering over the button, or clicking on it.
Over		When hovering over the button the button will change to a green color.
Down		When left-clicking on the button the color will change to red.

USING TEXT AS A BUTTON

In the first example the button was a simple rectangle shape. This section takes it one step further showing how to make buttons based on text. The approach is much the same; the only difference is to use text instead of rectangle in the button symbol master. In addition to changing the color of the text, the size will be changed as well.

To create a button symbol:

1. Select the **File** menu ► **New...**
2. Click on the **OK** button. This will create a new flash file.
3. Go to **Insert** ► **New Symbol...** in the menu. The *Create New Symbol* dialog box appears.
4. Type desired name of the new button in the **Name:** text box. For example **[Text button]**.
5. Select the **Button** option.
6. Click **OK** button. The symbol master will appear.

To define the up state:

1. In the **Text button** master, select the **Text Tool** **A** from the **Tools** panel.
2. Set the font to **Verdana** and size to **22**. Set the color to green (see Figure 7).

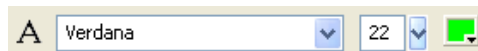


Figure 7 - Text Properties

3. Using the left mouse button create a text region in the Up frame.
4. Type **[My button]** into the text region (see Figure 8).

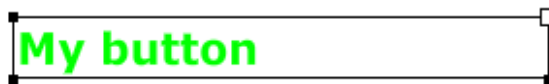


Figure 8 – Inserting the Text

To define the over state:

1. Insert a new keyframe in the Over state.
2. If not selected, select the **Text Tool** **A** from the **Tools** panel.
3. Highlight the text (see Figure 9).



Figure 9 - Highlighted Text

4. In the **Properties** panel change the color to a darker green color. This time, also increase the size to 30 (see Figure 10).

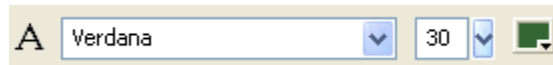


Figure 10 - Text Properties for Over State

To define the down state:

1. Insert a new keyframe on the Down state.
2. If not selected, select the **Text Tool** **A** from the **Tools** panel.
3. Highlight the text.
4. In the **Properties** panel change the color to a blue color (see Figure 11).

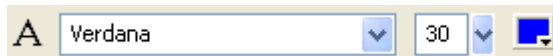


Figure 11 - Text Properties for Down State

To add the button to the scene:

1. Click on **Scene 1** on the **Timeline**. This will bring Flash back to **Scene 1**.
2. From the **Library** panel, left-click and drag the **Text button** symbol over to the middle of the first frame.
3. Animation is done. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. The result should be in accordance with Table 3.

Table 3 - Using text as a button

State	Button	Description
Up	My button	The text will be light green as long as the mouse cursor is not hovering over the text, or clicking on it.
Over	My button	When hovering over the text the, text will change to a darker green color, also the size will increase.
Down	My button	When left-clicking on the text, the color will change to blue.

USING IMAGES IN BUTTONS

Buttons are not limited to shapes, colors and text. Adding images to the different states of the button will give a more realistic look as well as a richer user experience. However, there are more implications when using images. To make sure the images in the different states are correctly aligned with each other, rulers, grids and grid snapping will be used.

Example:

In the following example a button will be created using images of a butterfly. Different images of the butterfly will be used for the Up, Over, and Down state.

To create the button symbol:

1. Select the **File** menu ► **New....**
2. Click on the **OK** button. This will create a new flash file.
3. Go to **Insert** menu ► **New Symbol...** The *Create New Symbol* dialog box appears.
4. Type **[butterfly button]** into the *Name:* text box.

5. Select the **Button** option.
6. Click **OK** button. The symbol definition scene opens.


To import the images:

1. From the **File** menu, select **Import... ► Import to Library...** The *Import to Library* dialog box opens.
2. Select “*butterfly1.jpg*” and click on **Open** button. This will add the image to the library.
3. Repeat steps 1 – 2 for “*butterfly2.jpg*” and “*butterfly3.jpg*”.

To activate rulers, grid and grid-snapping:

1. From the **View** menu, select **Rulers**. Rulers get activated.
2. From the **View** menu, select **Grid ► Show Grid**. The grid gets activated.
3. From the **View** menu, select **Snapping ► Snap to Grid**. Grid-snapping gets activated.

To define the up state of the button:

1. Double click on the **butterfly button** symbol in the **Library** panel. The definition scene for the **butterfly button** symbol gets activated.
2. From the **Library** panel, drag **butterfly1.jpg** over to the stage.
3. From the **Tools** panel, select the **Selection Tool** .
4. Left-click and drag the upper-left corner of the image to snap the image to the grid. Notice how the corner of the image gets changes, indicating snapping (see Figure 12).

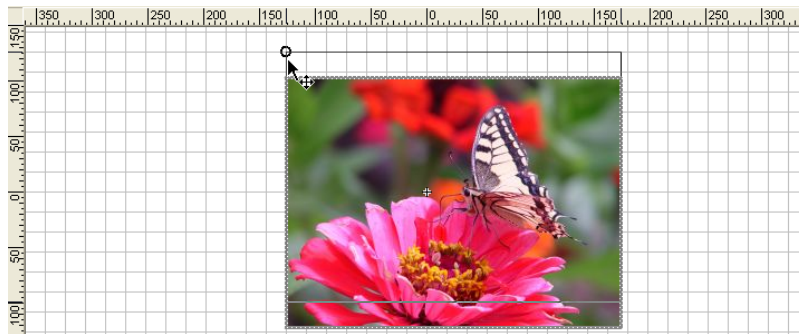



Figure 12 - Snapping Image to Grid

To define the over state of the button:

1. On the timeline, insert a new keyframe in the Over frame.
2. Press **[Delete]** key on the keyboard to delete the existing image.
3. From the **Tools** panel, select the **Selection Tool** .
4. From the **Library** panel, drag **butterfly2.jpg** over to the stage.
5. Left-click and drag the upper-left corner of the image to snap the image to the grid (see Figure 13).

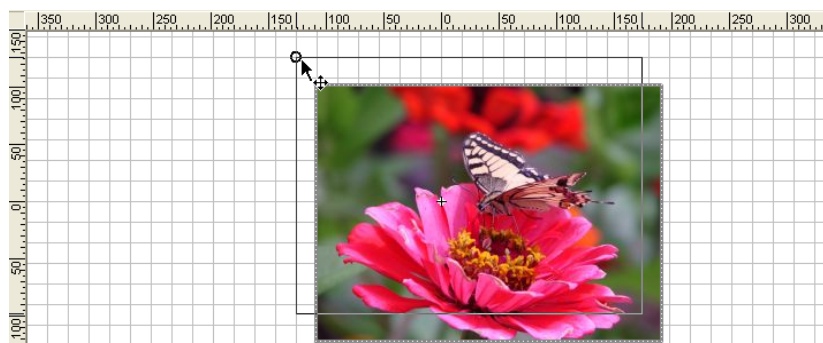


Figure 13 - Defining the Over State

To define the down state of the button:

1. On the timeline, insert a new keyframe in the Down frame.
2. Press **[Delete]** key on the keyboard to delete the existing image.
3. From the **Tools** panel, select the **Selection Tool**.
4. From the **Library** panel, drag **butterfly3.jpg** over to the stage.
5. Left-click and drag the upper-left corner of the image to snap the image to the grid (see Figure 14).

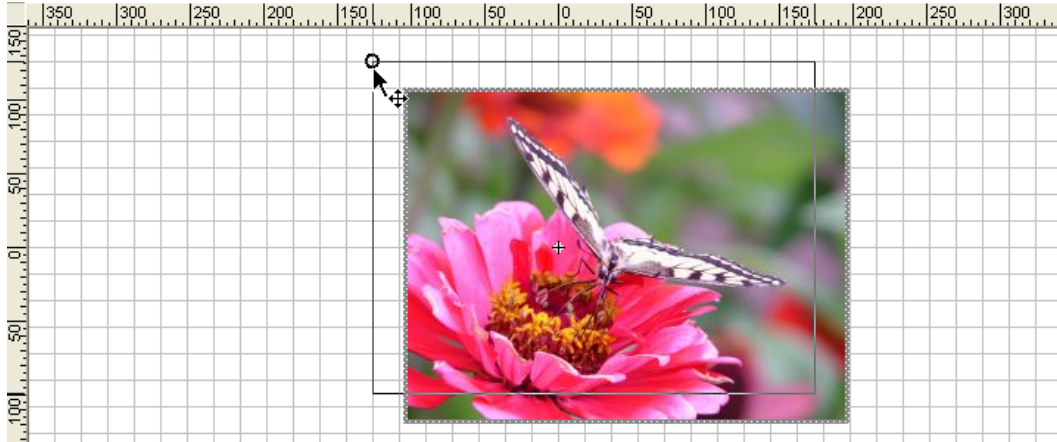





Figure 14 - Defining the Down State

To add the button to the scene:

1. Click on **Scene 1** on the **Timeline**. This will bring Flash back to **Scene 1**.
2. From the **Library** panel, left-click and drag the **butterfly button** symbol over to the middle of the first frame.
3. The animation is done. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. The result should be in accordance with Table 4.

Table 4 - Using images as buttons

State	Button	Description
Up		First image is shown as long as the mouse cursor is not hovering over the text, or clicking on it.
Over		When hovering over the image, the second image will be shown.
Down		When left-clicking on the image, the third image will be shown.

DEFINING A CUSTOM HIT STATE

Sometimes the hit-area that is automatically defined by Flash is not the way that is desired. For example in the case where only part of the shape is supposed to be clickable. In other cases the hit area is too small and a larger customized hit state is needed. One particularly useful situation is when creating shapes that only have border and no fill, thus being transparent (see Figure 15). In these cases only the border would be clickable. However, by defining a hit state we can set a custom hit area that also lets the circle be clickable in the transparent areas.

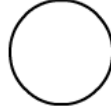


Figure 15 - A Bordered Circle with no Fill

To define a custom hit state:

1. Select the **File** menu ► **Open...** The *Open* dialog box appears.
2. Select the “*transparent circle.fla*” file from the data files folder.
3. Test the animation. To test the animation hold down the [Ctrl] key while pressing the [Enter] key on the keyboard. Notice how the circle is not clickable in the middle but only the border.
4. Double-click on the “*Transparent circle*” symbol in the **Library** panel. This will bring up the symbol master. Notice how there is no hit state defined yet (see Figure 16).

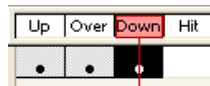


Figure 16 – No Defined Hit State


5. Insert a new keyframe in the Hit state. The circle will be selected automatically.
6. From the **Tools** panel, select the **Paint Bucket Tool** .
7. In the **Colors** panel change the fill color from none to red (see Figure 17).



Figure 17 - Changing the Fill Color


8. Change the fill-color of the circle by clicking somewhere in the middle of the circle with the **Paint Bucket Tool**  (see Figure 18).



Figure 18 - Using the Paint Bucket Tool


Adding Behavior

The buttons created so far have no purpose beyond changing color or shape. Usually interacting with a button leads to an action. For example clicking on the button may open a Web page or start an animation. To add this kind of functionality a little knowledge of behaviors is required. Behaviors can also be added to frames themselves and will be triggered whenever that frame is observed.

LINKING TO A WEB SITE

Buttons are often used in menus. Each button in the menu can be a link to a Web page. In order to apply this kind of behavior to a button, the first thing that needs to be done is adding an instance of the button to the stage. Once this instance is added, it must be given a unique name. This is so that Flash can identify which behavior belongs to which objects.

To name an instance:

1. Select the **File** menu ► **Open...** The *Open* dialog box appears.
2. Select the “*creating hyperlink fla*” file from the data files folder.
3. Using the **Selection Tool** , select the **Training Program** button on the stage.
4. Enter [**Training Program**] in the <*instance name*> textbox in the **Properties** panel (see Figure 19).

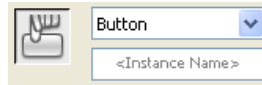


Figure 19 - Naming the Instance

5. Click [**Enter**] on the keyboard.

To add hyperlink behavior:

1. Click on the **Training Program** button instance to select it.
2. Hold down [**Shift**] key while pressing [**F3**] key. This brings up the behaviors window (see Figure 20).

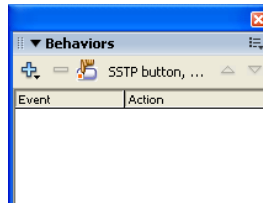



Figure 20 - Behaviors Window

3. Click the **Add Behavior** button . This will bring up a sub menu. Select **Web** ► **Go to Web Page** (see Figure 21). The *Go to URL* dialog box opens.

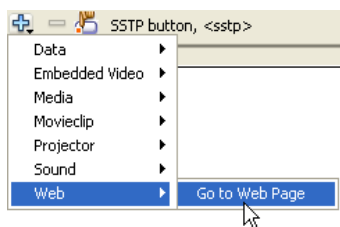


Figure 21 - Adding a Behavior

4. In the *Go to URL* dialog box, type [**http://www.calstatela.edu/training**] into the *URL:* textbox (see Figure 22).

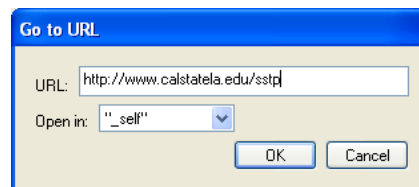



Figure 22 - The Go to URL Dialog Box

5. Click **OK** button. The behavior is now added to the **Training Program** button instance.
6. Test the flash file by holding down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. When clicking on the **Training Program** button the Training Program Web site should open.

STOPPING AT FRAME

So far in the Flash workshops each frame on the timeline has been running continuously in a consecutive order. At the end of the animation the animation will simply start over again. However, when dealing with an interactive animation, it's important to stop at each frame and wait for input.

To stop at frame:

1. Select the **File** menu ► **Open....** The *Open* dialog box appears.
2. Select the "*bouncing ball fla*" file from the data files folder.
3. Test the animation. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. Notice how the animation just keeps on repeating.
4. Click on frame 24 in the **Timeline** panel.
5. Click on the **Actions** button ► **Actions** below the stage to active the **Actions** panel.
6. Click the **Add new item to the script** button . A sub menu appears. This will bring up a sub menu. Select **Global Functions** ► **Timeline Control** ► **stop** (see Figure 23).

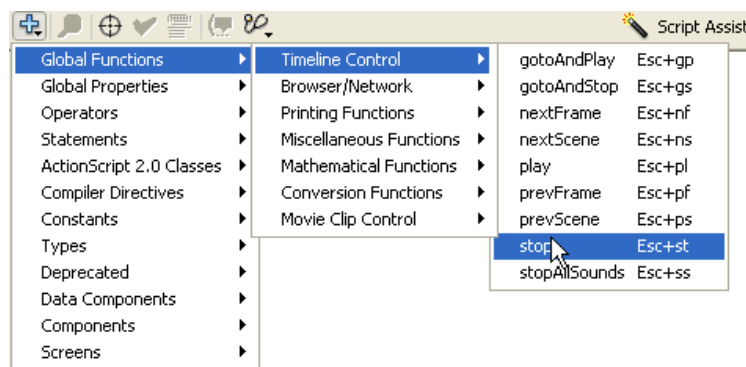


Figure 23 - Adding Action to Frame


7. The animation is done. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. Notice how the animation now stops at the end.

GOING TO A FRAME THEN STOPPING

This next technique is useful especially with buttons. For example all the buttons are added to frame 1. When one of the buttons is clicked Flash should go to frame 2.

To go to a frame then stopping:

1. Select the **File** menu ► **Open....** The *Open* dialog box appears.
2. Select the "*click me fla*" file from the data files folder. This is a file that has two frames. The first frame has a button **Click me**. There is no behavior added to this button yet. Frame 1 has the stop Actionscript command attached to it and will stop the animation. Observe frame 2. Frame 2 has some extra information added to it.
3. Test the animation. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. Notice how nothing happens when the button is clicked.
4. Left-click on frame 1 on the **Timeline** panel. This will take the stage to frame 1.
5. Left-click on the **Click me** button instance. This will select the **Click me** button.

6. Activate the behavior window (**[Shift+F3]**).
7. Click the **Add Behavior** button . This will bring up a sub menu. Select **Movieclip** ► **Goto and Stop at frame or label** (see Figure 24). The *Goto and Stop at frame or label* dialog box opens.

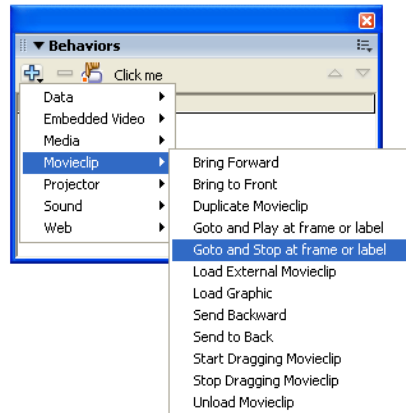


Figure 24 - Goto and Stop at frame or label

8. In the *Goto and Stop at frame or label* dialog box type **[2]** into the textbox as shown in Figure 25.

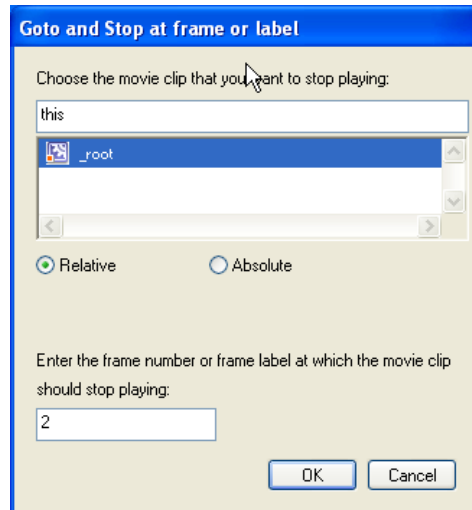


Figure 25 - The Goto and Stop at frame or label Dialog Box

9. Click on **OK** button.
10. The animation is done. To test the animation hold down the **[Ctrl]** key while pressing the **[Enter]** key on the keyboard. When clicking on the **Click me** button the animation should jump to frame two.

Using Button Behaviors in a Web Page

Using the techniques gone through so far in this workshop, it's possible to build a Web page. This section will explain how to implement button behaviors in a Web page. Most of the content of the Web page is already in the "*webpage.fl*" file, but feel free to change or modify it.

BUILDING THE MENU

This section goes through the steps of building a menu using instances of button symbols with the *Goto and Stop at frame or label* behavior.

To build the menu:

1. Select the **File** menu ► **Open...** The *Open* dialog box appears.
2. Select the “*webpage fla*” file from the data files folder. This is a file that has 3 different frames. The three different frames each represent the **home**, **my interests**, and the **my links** buttons (see Figure 26). Click on frame 1, 2, and 3 to see the difference between the frames. Test the Web page in its current state ([**Ctrl+Enter**]) to see that there is no behaviors added yet. Notice how there is no behavior added to frame yet to tell the animation to stop at the first frame.



Figure 26 – The Menu



3. Add *stop* behavior to frame 1 as described in *Stopping at Frame* section. Test the Web page again ([**Ctrl+Enter**]). Notice how the animation stops at the first frame.
4. In the *menu* layer, left-click on frame 1. This will select all the different buttons in the menu.
5. Click somewhere outside the stage to deselect the selection.
6. Using the **Selection Tool** , select the **Home** button.





Figure 27 - Selecting the Home Button

7. Activate the behavior window ([**Shift+F3**]).
8. Click the **Add Behavior** button . This will bring up a sub menu. Select **Movieclip** ► **Goto and Stop at frame or label** (see Figure 24). The *Goto and Stop at frame or label* dialog box opens.
9. In the *Goto and Stop at frame or label* dialog box type [1] into the textbox.
10. Click on **OK** button.
11. Repeat steps 6 to 10 for the buttons **my interests**, and **my links**. Link **my interests** button with frame 2 and **my links** button with frame 3.

The approach is a little bit different with the **email me** button. This button will not be linked to any frame but to an email address.

To link to an email address:

1. Using the **Selection Tool** , select the **Email me** button.
2. Activate the behavior window ([**Shift+F3**]).
3. Click the **Add Behavior** button . This will bring up a sub menu. Select **Web** ► **Go to Web Page** (see Figure 21). The *Go to URL* dialog box opens.
4. In the *Go to URL* dialog box, type [**mailto:youremail@calstatela.edu**] into the *URL:* textbox (see Figure 28). Replace *youremail@calstatela.edu* with your actual email address.

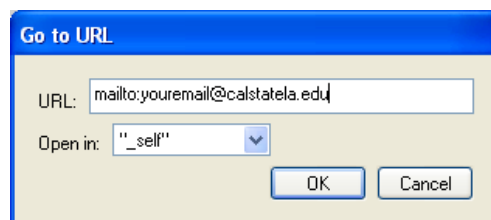


Figure 28 - Inserting link to Email Address

5. Click on **OK** button.
6. When done, insert keyframes in frame 2 and 3 of the *menu* layer.
7. The menu is done. To test the animation hold down the [**Ctrl**] key while pressing the [**Enter**] key on the keyboard.

Practice the concept: In the *content* layer in frame 3 (see Figure 29), add links to the respective Web sites (see Table 5) such as described in the **Linking to a website** section.

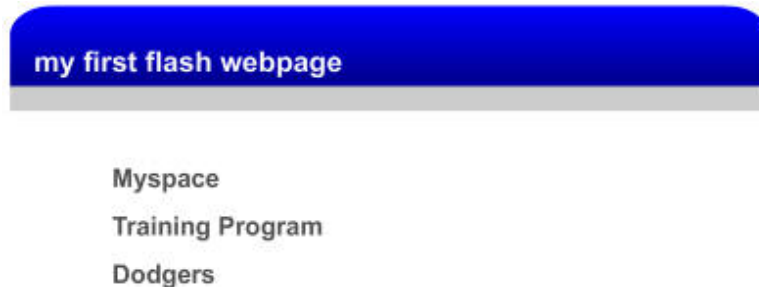


Figure 29 - Content Layer Frame 3


Table 5 - Button and URL

Button	URL
Myspace	http://www.myspace.com/
Training Program	http://www.calstatela.edu/training
Dodgers	http://www.dodgers.com/

EXPORTING INTO .HTML FILE

After the Web page flash file has been created we can export it into a html file.

To export into .html file:

1. From the menu, select **File ► Publish settings....** This will bring up the *Publish settings* dialog box.
2. In the *Publish settings* dialog box, click on the **folder** icon  next to the *webpage.swf* textbox. This will open the *Select Publish Destination* dialog box.

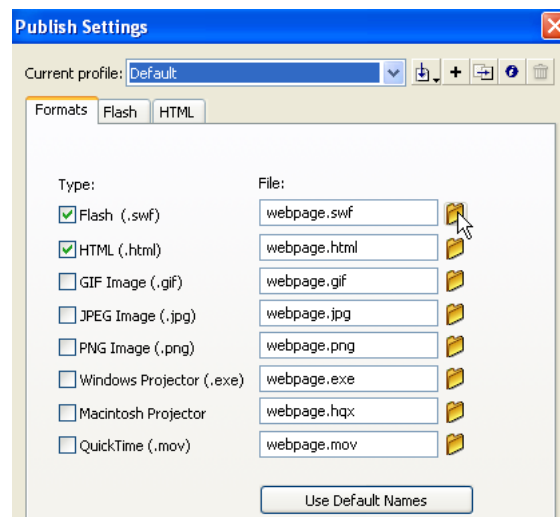


Figure 30 - Publish Settings

3. In the *Select Publish Destination* dialog box, select the desktop.

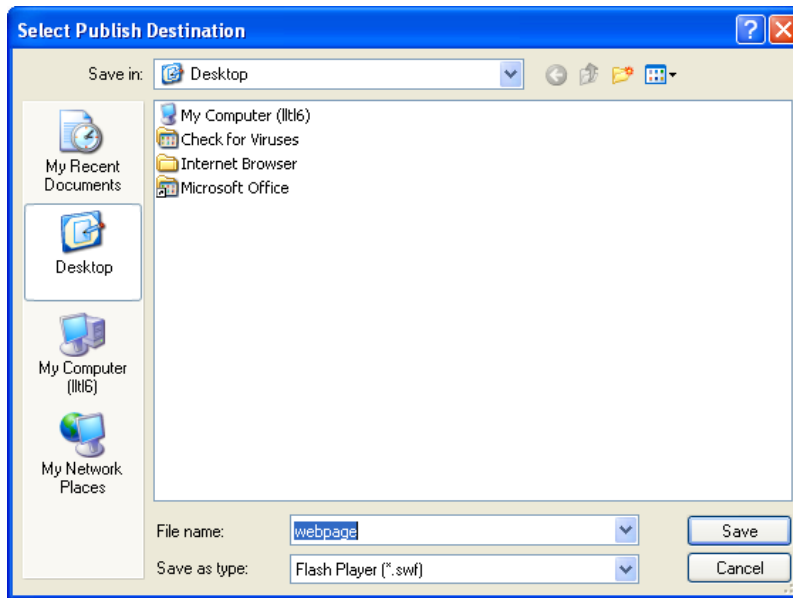


Figure 31 - The Select Publish Destination Dialog Box

4. Click the **Save** button. The “*webpage.swf*” file will be saved to the desktop.
5. Repeat steps 2 to 4 for the folder icon next to the *webpage.html* textbox. The “*webpage.html*” file will be saved to the desktop.

NOTE: It’s important to set the settings for both the *.swf* and *.html* file. Since both of these files are required when saving into html format.

6. From the menu, select **File ► Publish**, optionally [**Shift+F12**]. This will publish the Web page with the settings that were just set.